c. **Amendments to Claims**

1. (Currently amended) A process for optically transmitting data to a remote receiver, comprising:

receiving a stream of input data signals;

modulating a mid-IR laser by direct modulation with a waveform whose sequential values are responsive to the data signals of the stream, the direct modulation including pumping the mid-IR laser to produce relatively high and low optical power levels in response to different ones of the values; and

transmitting output light from the modulated mid-IR laser to the remote receiver via a free space communications channel; and

wherein the modulating by direct modulation pumps the mid-IR laser to be in a lasing state during first intervals in response to the input data signals having a first signal value and to be in a non-lasing state during second intervals in response to the input data signals having a second signal value, the modulating including DC biasing the mid-IR laser to be 0.001 volts to 0.1 volts from a lasing threshold of the mid-IR laser; and

wherein the first intervals are shorter than the second intervals.

2. (Currently amended) A process for optically transmitting data to a remote receiver, comprising:

receiving a stream of input data signals;

modulating a mid-IR laser by direct modulation with a waveform whose sequential values are responsive to the data signals of the stream, the direct modulation including pumping the mid-IR laser to lase in response to one value of the input data signals and to not lase in response to another value of the input data signals, the modulating including DC biasing the mid-IR laser to be 0.001 volts to 0.1 volts from a lasing threshold of the mid-IR laser; and

transmitting output light from the modulated mid-IR laser to the remote receiver via a free space communications channel; and

wherein the waveform maintains the laser near a lasing-threshold in response to the another value of the input data signals.

3. (Original) The process of claim 2, wherein the modulating a mid-IR laser by direct modulation includes pumping a gain region of the laser with a modulation current whose successive values are responsive to the data signals of the stream.

4 – 5. (Canceled)

6. (Previously presented) The process of claim 1, wherein the first and second signal values are first and second digital values, respectively.

7. (Original) The process of claim 2, wherein the modulating produces light of a wavelength between about 3.5 microns and about 24 microns.

8. (Original) The process of claim 1, wherein the wavelength of the produced light is at least as long as about 8 microns and not longer than about 13 microns.

9. (Previously presented) The process of claim 2, wherein the wavelength of the produced light is not longer than about 13 microns.

10. (Original) The process of claim 1, wherein the modulating produces light in a spectral window in which atmospheric attenuation is lower than at adjacent wavelength ranges.

11. (Original) The process of claim 1, wherein the transmitting sends sequential modulated optical values at a rate that is at least as high as 1 giga-Hertz.

12. (Original) The process of claim 1, wherein the transmitting sends sequential modulated optical values at a rate that is at least as high as 2 giga-Hertz.

13. (Currently amended) An optical transmitter, comprising:

a mid-IR laser having an optical gain media; and

a modulator connected to modulate pumping of the gain media during modulation intervals in a manner that is responsive to values of data signals received in associated data intervals, the modulator being configured to cause the mid-IR laser to lase in portions of ones of the modulation intervals associated with one value of the data signals and to not lase in remainders of the ones of the modulation intervals associated with the one value of the data signals, the modulator being configured to cause the mid-IR laser to not lase in others of the modulation intervals associated with another value of the data signals; and

wherein the modulator is configured to DC bias the mid-IR laser to be 0.001 volts to 0.1 volts from a lasing threshold of the mid-IR laser.

14. (Previously presented) The transmitter of claim 13, wherein the modulator is configured to cause the mid-IR laser to lase for less than 30 percent of the total time in the ones of the modulation intervals.

15. (Previously presented) The transmitter of claim 13, wherein the modulator is configured to maintain the laser near a lasing threshold of the mid-IR laser in the others of the modulation intervals.

16. (Original) The transmitter of claim 13, wherein the mid-IR laser is a quantum cascade laser.

17. (Original) The transmitter of claim 13, wherein the mid-IR laser is configured to produce light with a wavelength of at least about 8 microns and not longer than about 13 microns.

18. (Previously presented) The transmitter of claim 13, wherein the mid-IR laser is configured to produce light with a wavelength that is not longer than about 13 microns.

19. (Original) The transmitter of claim 13, wherein the mid-IR laser produces light in a spectral window in which atmospheric absorption is lower than at adjacent

wavelength ranges.

20. (Original) The transmitter of claim 13, further comprising:

collimating optics positioned to collimate output light from the mid-IR laser into a beam with a diameter of at least 1 millimeter.

21. (Original) The optical transmitter of claim 13, wherein the modulator applies an optical pumping light to the gain media to modulate pumping of the gain media.

22. (Original) The optical transmitter of claim 13, wherein the modulator transmits an electrical current through the gain media to modulate pumping of the gain media.

23. (Previously presented) The transmitter of claim 13, wherein the modulator is configured to cause the mid-IR laser to lase for less than 40 percent of the total time in the ones of the modulation intervals.

24. (Previously presented) The transmitter of claim 13, wherein the modulator is configured to cause the mid-IR laser to lase for less than 10 percent of the total time in the ones of the modulation intervals.